The MAC Flyer

DECEMBER 1973

Sundown , 1973 –

MILITARY AIRLIFT COMMAND
GEN PAUL K. CARLTON Commander
LT GEN JAY T. ROBBINS Vice Commander
BRIG GEN JOHN H. GERMERAAD Inspector General
COL B. J. MASSINGILL Director of Safety

The MAC Flyer

For Greater Efficiency in MAC Air Operations

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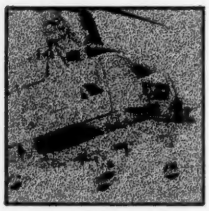
7

14

25

A Christmas Message 3
To Go or Not to Go 4
Arctic Santa Claus 7
Mishaps with a Moral 10
Global Notes 12
Writing Contest 13
Mind Benders 14
1974 C. R. Terror Calendar 16
A Wing Tip's Sacred to No One 18
C. R. Terror 20
Two Cent Mod for the APN-157 24
Phasing into Flying 25
Quick Stoppers 28
After Deadline 30
Yearly Index 31

COVER: A lone Starlifter stands silent as another year comes to a close.

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Season's Greetings

from the staff of The Mac Flyer

A Christmas Message

It is a pleasure to extend my most sincere Christmas greetings to the men and women serving throughout the world in the Military Airlift Command.

To most of us, Christmas means home, family, close friends, and the generous feeling which has endured throughout centuries as a beckoning light to mankind. At this time of year we turn inward, measuring ourselves as individuals and looking back on our blessings and accomplishments.

This Christmas has a special meaning for the families of former prisoners-of-war. Many of these gallant men spent last Christmas in bleak cells among unfriendly captors in a foreign land. Now, they are reunited with their families and friends in the warmth of home. To those of you who have returned to us, I extend a very special season's greeting.

This year has been a productive one. The evacuation of American prisoners of war from North Vietnam was without doubt the high point of 1973 and must be ranked among the most gratifying of all our missions. The airlift to Israel following the outbreak of hostilities in the Middle East provided yet another challenge to which you responded most magnificently. I and many others owe you thanks for that great effort.

Our missions, by and large, have been accomplished flawlessly and have achieved the desired results. This is a tribute to all of you whether your job is out on the line, in the cockpit, or in a support area; for only through your dedication and complete involvement can any mission succeed. I realize that maintaining such a posture is not easy, particularly in an environment of increasing demands and lessening resources. Nevertheless, armed with diligence and proficiency, you have performed admirably. You can be proud of our achievements as this year ends. You deserve the gratitude and admiration of your fellow countrymen.

Even greater challenges lie ahead for us in 1974, and once again I am counting on you to encounter them as you have in the past. Above all, I ask you to re-examine your attitude toward self, job, and country. For it is the sum total of these attitudes that makes MAC what it is, and we must not settle for less than the best. I am confident that we will make 1974 the safest and most efficient year ever for MAC.

While I am unable to pay a personal visit to each MAC unit, Mrs. Carlton and I extend our very warmest wishes to each of you and your families on this most precious of all holidays. May the true Spirit of Christmas be with all of you during the Yuletide season and throughout the coming year.

Paul K Carlton

There's more to takeoff than advancing throttles; a mixed bag of data will determine whether . . .

To Go or Not to Go

by Capt A. R. Barbin, Associate Editor

Vmcg, Vr, Cfl, Vrot, Vcef, Vmca, Vb-max — Veeeeautiful. But what good is a lexicon of performance data symbols? After all, feed certain parameters into charts, graphs, and tables and out comes V-this and V-that.

Scribble your figures onto your TOLD card, set the command markers, advance throttles . . . . But wait just a minute. What am I doing here? I'm not quite sure what Vb-max is all about.

Chances are, a good many pilots flying the line right now are a little fuzzy on one or more aspects of takeoff performance data. TOLD card data can be as perplexing as it is essential unless the person using it understands its relationship to the takeoff profile.

There are many different types of fixed wing aircraft operated by MAC crews. They range from mission support T-39, C-118, and T-29 aircraft to the long range heavies like the C-141 and the C-5. Computed takeoff figures will certainly vary in each of these aircraft, but certain basic concepts hold true for all. The following definitions and illustrations were extracted in part from C-141 and C-5 flight performance manuals and the takeoff examples are approximations of C-141 and C-5 takeoff performance.

Here are a few terms most of you will recognize if you've been flying MAC transports.

Vrot (Rotation Speed) — The speed at which rotation from three point attitude to the takeoff attitude is initiated.

Vr (Refusal Speed) — The maximum speed at which the airplane can lose an engine, have this recognized by the pilot, and stop on the available runway.

Vcef (Critical Engine Failure Speed) — The speed to which the airplane can be accelerated, lose an engine, and then continue the takeoff or stop within the computed critical field length.

CFL (Critical Field Length) — The total runway

length required to accelerate on all engines to critical engine failure speed, experience an engine failure, then either continue the takeoff or stop. For a safe takeoff, the critical field length must be no greater than the length of runway available.

Vmcg (Ground Minimum Control Speed) — The minimum airspeed during takeoff at which the airplane can lose an outboard engine and maintain directional control on the runway with full rudder deflection and nose wheel steering. Wet runways can negate the effectiveness of nose wheel steering.

Vmca (Air Minimum Control Speed) — The minimum speed at which directional control can be maintained utilizing full rudder deflection and normally not more than five degrees of bank away from the inoperative engine(s). Vmca is not a factor during the takeoff roll since it is always lower than Vrot.

Vb-max (Maximum Braking Speed) — Maximum speed at which full anti-skid braking can be applied. Full brake applications beyond this speed will exceed the design limits of the brakes. Normally, Vb-max is a takeoff factor during heavy weights rejects and emergency return landings at high altitudes and hot temperatures.

RA (Runway Available) — The total length of runway available for takeoff less lineup distance.

Vgo — The speed at which the pilot becomes committed for takeoff. It is based on the lowest of Vrot, Vr, and Vb-max.

With these definitions freshly in mind, let's take a look at a typical MAC takeoff. The sun is shining, winds are calm, the runway is dry, and your bird is lightly loaded and ready for takeoff. Your TOLD card indicates a Vmcg of 70 knots, Vrot of 120, Vr of 155, and Vb-max of 200 plus. These speeds pose no unusual takeoff problems. First off, your committal and rotate speed (go speed) is 120. Refusal and max braking speeds are not a factor since they are well above the takeoff speed of 120. Ground minimum control speed of 70 knots is also no factor because a loss of any engine up to 120 would result in an aborted takeoff and restoration of near symmetrical (idle) power.

Take the same airplane, weigh it down with cargo, shorten the runway, and an entirely different relationship exists. In this example, TOLD data reflects Vmcg 70, Vr 125, Vrot 135, and Vb-max 180. When are you committed for takeoff? The answer is at 125 knots. If an engine is lost or an emergency is experienced after passing 125 knots, you must continue the takeoff because there is insufficient runway remaining to halt your speeding bird even with max braking and drag devices deployed. You already passed Vmcg of 70 knots, so if an outboard engine is lost after passing 125 knots, sufficient directional control is available to counter the yaw and to continue the takeoff. Max braking speed is lower in this example, but is still no factor.

This is where the action is.

A combination of a short runway, low RCR, crosswinds at limits, and a moderately heavy bird can cause an unusual situation. Try some numbers like these: Vr 105 knots, Vmcg 115 knots, Vrot 125 knots. See anything odd? Would you attempt takeoff?

Imagine yourself whistling down the runway with these numbers in front of you. Passing 105 knots your copilot says, "Go." At 110 knots, number four quits and you're still five knots shy of ground minimum control speed. The crosswinds and RCR would simply overcome your anguished attempts to keep the aircraft directionally aligned with the runway. Having passed refusal (committal) speed, it's too late to stop and too soon to go. Regardless of whether you continued to press on or abort, you would probably end up off the side or end of the runway. Refusal speed (Vr) must always exceed, or at least equal, ground minimum control speed (Vmcg). If it doesn't, it's a no-go.

Would you believe that Vb max could be your takeoff "go" or committal speed? That's right! The effects of high pressure altitudes, hot temperatures,

To Go or Not to Go

Too soon to go; too late to stop.

and aircraft gross weight could conceivably permit the designed brake limits to be exceeded. Wheels and brakes know only ground speed and at lofty runways, ground speeds may be up to 25 knots higher than indicated airspeed. If an abort is attempted after passing Vb max, the application of maximum anti-skid braking could exceed the energy absorption capability of the brakes. This could result in the airplane going off the end of the runway. Also, temperatures of up to 900 degrees centigrade would burst thermal fuse plugs and a hydraulic fire in the wheel assemblies would be imminent.

Takeoff Cases

The very mention of critical field length and critical engine failure speed causes many pilots to cringe. Critical field length is computed in order to determine the maximum gross weight for a safe takeoff and climbout. If the aircraft is too heavy, then the critical field length will exceed the runway available.

When the runway available is equal to the critical field length and engine failure occurs at Vr, the distance to continue on three engines equals stopping distance. This is the only time that Vr, Vcef, and Vgo are all equal. Note that Vmcg is less than Vr.

The most common condition that you'll encounter is when runway available is greater than critical field length. With this condition, refusal speed is always higher than the critical engine failure speed (Vcef) and is always computed and used in lieu of Vcef. This is because refusal speed is based on the actual amount of runway ahead of you.

If the runway available for takeoff is less than the computed critical field length, then you don't go. Your bird is too heavy to accelerate to refusal, shut down an engine, and stop within the available concrete.

If you think you're pretty good at computing performance data, try this little quiz. If you answer all the questions correctly, you have a pretty good grasp of the subject.

Quickie Quiz

What is "go" speed for each case and is a safe takeoff possible?

1.

	Vmcg	Vrot	Vr	Vb max	"go"	Yes	No
1.	75	110	120	195			
2.	85	125	110	170			
3.	115	130	108	195			
4.	100	150	155	147			

2. Would you attempt takeoff?

	CFL	RA	Yes	No
1.	4,250	7,500		
2.	8,800	8,900		
3.	10,800	10,200		
4.	5,300	9,800		
5.	9,600	7,700		

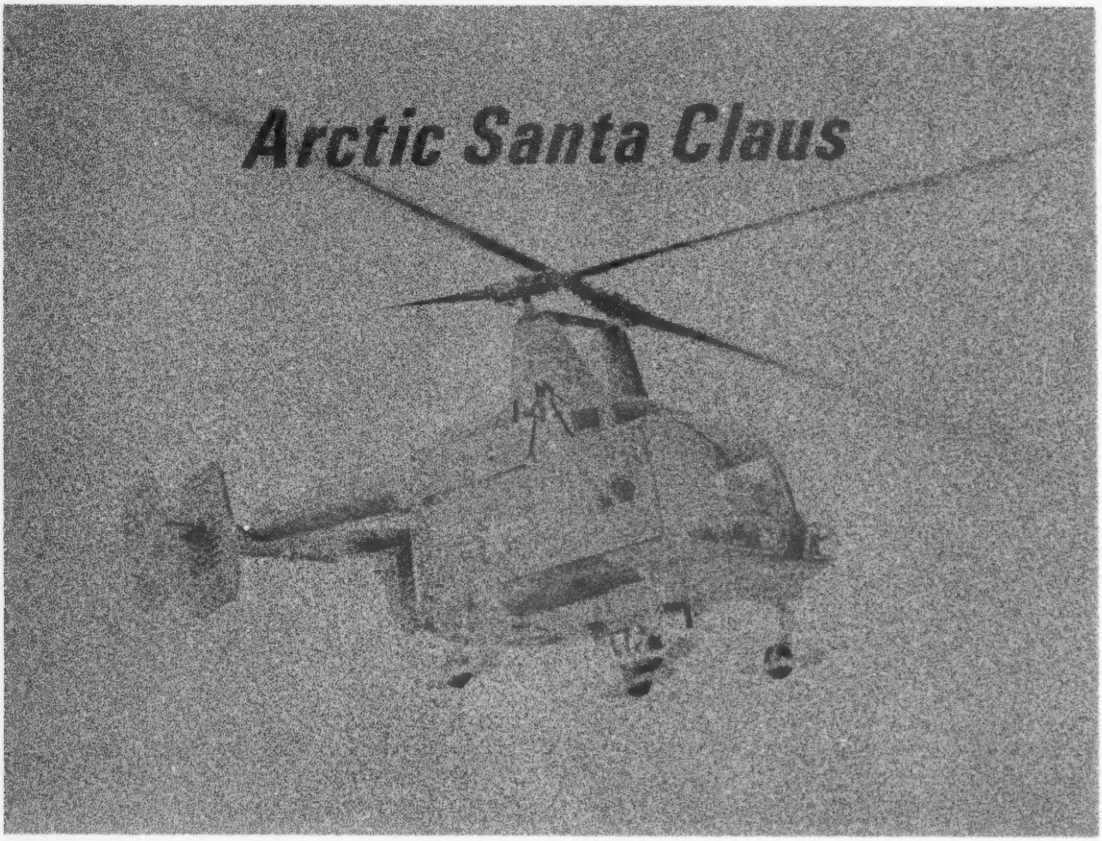
Your Dash One may refer to the terminology presented here in a different fashion. Refusal speed (Vr) may be referenced in your book as V1 or decision speed but these concepts are valid for most of the MAC fleet. Take a look at the performance section of your Dash One and study takeoff concepts and computations in Section Three. Aside from gaining a better understanding you might even dazzle the flight examiner with your skill and cunning on your next evaluation flight.

Answers to Quickie Quizzes

1. 1, 110 yes; 2, 110 yes; 3, 108 no; 4, 147 yes.
2. yes, yes, no, yes, no.

A blizzard plus vertigo makes a tough night for the . . .

Arctic Santa Claus



by Maj Clarence C. Campbell
HQ ARRS Scott AFB, ILL.

Funny how people will often overextend themselves—pushing to the very limit of their endurance to finish even the most elementary missions, even ignoring numerous warnings of approaching danger along the way.

As I gazed out into the darkness, and watched the wind slowly swirl snow around the tires of our helicopter, I cursed under my breath and wished again for this miserable day to end. Nothing had gone right since that darn alarm clock rang at 0630. I cut myself shaving, the cook broke the yolks of my eggs, and the truck even had a dead battery. Sometimes when a day starts badly it gets better as it goes along. This one had gone from bad to worse, and now, after that phone call, this evening promised to be the worst of all.

"The Danish Liaison Officer wants us to haul a bunch of Christmas presents to the Eskimo kids at Kanak," Tim, my Commander, said.

"I don't think we should risk it, Tim," I said. "It's the dark season and Weather says there's an Arctic storm brewing up north of here."

"I know," he replied, "but if we don't get these thru there'll be an awful lot of disappointed Mukluks tomorrow."

At that moment I wished that I had not even woke up this morning, much less got out of bed!

"Couldn't we wait until tomorrow?" I asked.

"Afraid not. You preflight the bird and I'll file. We'll be done in a couple of hours and I'll buy you a drink at the club. If we hustle we can be back for the midnight show in the bar. I hear Big Red is gonna take it all off tonight."

Arctic Santa Claus

Flight planning, preflight and cargo loading went quickly and smoothly. I soon found myself pressing the transmitter button and I heard myself say, "Thule tower, Pedro Two is ready for takeoff."

"Roger, Pedro, wind 240 degrees at 10 knots, altimeter 29.89, cleared for takeoff."

Acknowledging, I slowly lifted the collective. The helicopter paused momentarily and then slowly lifted clear of the frozen ramp.

Several minutes passed without anyone saying a word in the cockpit. The only activity inside the aircraft was the constant march of the altimeter needle inching its way toward the 5,000 foot mark.

"One hundred feet below level off," Tim called.

"Roger," I replied. "Do you have our escort aircraft in sight?"

"No, but I'll give him a call. Air Force 789, this is Pedro, what's your position?"

"Pedro, this is 789; I'm about a mile behind you at 6,000. How's everything going?"

"Pretty good so far," I answered. "We should hit the village in 30 minutes. I'm at 5,000, heading 060 degrees. These mountains are at 3,500 so I have 1,500 feet to play with."

Silence once again fell over the flight as each man concentrated on his crew duties. The red panel lights, reflecting off the plexiglass canopy, played tricks on my senses. Ghostly figures danced across the wind screen, changing shape, size and speed, as if they were keeping time to an orchestra playing a silent melody only they could hear.

"There's the village," Tim called, as the few flickering lights of the remote Greenlandic village pierced the vast expanse of blackness.

After circling the little settlement below, we lined up on a dark space that we knew from previous experience was usually free of dog sleds, buildings, and other obstructions.

As the helicopter settled to the ground, Tim slid his door open and unbuckled his seat belt.

"Make sure those people don't get too close to the 'copter," I warned. "I'd hate to see anyone get hurt, especially at Christmas."

My words were lost in the wind, as Tim had already departed and was busy handing out large bags of presents to the village elders. He occasionally shook hands with one or clapped another on the back. Their only sign of thanks was a slight wave of their arm as our helicopter departed.

As we headed toward home and a glass of Christmas cheer, I smiled slightly to myself. Even though I wasn't fat enough to be Santa, this day hadn't been so bad after all. I'd provided some happiness for my fellow man—and in doing so had reaped some personal Christmas joy.

What jarred me back to reality is still a mystery. I suddenly realized that we had flown into a tremendous snow storm. One glance outside told me we were in serious trouble. The canopy was completely white, as if the whole world were a bottle of milk—and we were floating inside.

"Your airspeed has dropped to twenty knots!" Tim yelled.

"I know, I've got a bad case of vertigo."

I felt Tim grab the controls and I relaxed so I could concentrate on the instrument panel readings. My vertigo left me as fast as it had appeared. As I interpreted the instrument readings, however, I realized that Tim had developed a severe case of spatial disorientation himself, only he wasn't saying anything.

"Are you having trouble, Tim?"

He didn't answer!

Then to my amazement he started a slight descent and the artificial horizon showed that he had entered a left turn. As I glanced back at the airspeed it was passing 70 knots.

"Better slow down," I called. "The Dash One says this whistling palm tree comes apart at 105."

The airspeed was now passing 100.

"Slow down, Tim! Your airspeed is too high and you're at 4,000. Level off!"

There was still no response.

"Give me the controls, Tim!" I was yelling like a banshee. "Let go of the stick! Tim! Let me have the aircraft!"

Tim slowly relinquished control and I finally leveled the aircraft. The altimeter read 3,450. The storm raged outside. Inside, I watched the altimeter slowly, painfully, start to climb. Every ounce of my strength and concentration was being devoted to keeping the aircraft level. All I could think of was needle, ball, airspeed, needle, ball, airspeed. My vertigo returned in full force. My senses told me I was upside down though my instruments said the opposite.

Once Tim regained his composure, he said, "After all the wild gyrations we went through, I'd better call radar for a vector back to the base."

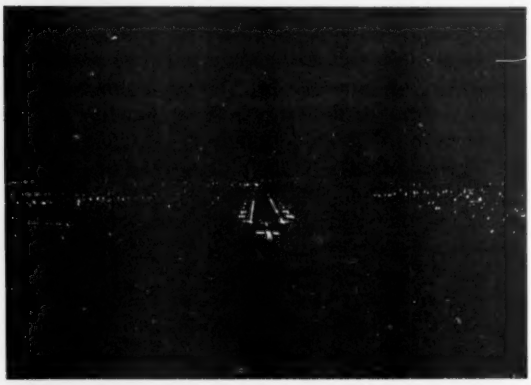
I nodded my approval. I was too busy to speak.

"Thule Approach, this is Pedro Two. We'd like radar vectors for a GCA, over."

The answer came almost immediately.

"Roger, Pedro, this is Thule Approach. We have two targets at your location. Make a turn to 300 degrees for identification."

Tim looked at me in anticipation. I was concentrating so hard on flying instruments that I didn't have the strength to press the intercom button to answer him, much less make an identifying turn.



Haven for Santa and his weary crew.

"You don't want to turn?" Tim's face was drawn.

I shook my head negatively.

"Approach this is Pedro Two. Your second target is our escort aircraft. We have vertigo pretty bad. You'd better have him make the turn. The one that doesn't turn is us."

"Approach, this is 789 turning right to 300 degrees," answered our escort.

"Roger 789. Pedro Two, Approach has a positive fix on you. Your position is two zero miles northeast of Thule. Fly heading 220 degrees."

I breathed a sigh of relief and relaxed my death grip on the controls as the lights from the base finally glittered dimly through the blizzard.

* * *

Much later, after the aircraft had been bedded down in the hangar, Tim and I tried to soothe our jangled nerves over a drink at the club. "Do you know what the airspeed read when you finally gave me the controls?" I asked.

"Not really," he answered, "but I know it was high."

"Well, it was passing 120."

He didn't answer, just kept looking down into his drink. Finally, after many moments of silence he said, "The things we do——" his voice trailing off into silence.

I took a long drink of bourbon, looked out at the black, cold night and remarked, "I knew this day was gonna be miserable when the cook broke the yolks of my eggs this morning. We even missed Big Red's coming out party."

"I'm just glad Christmas comes only once during our tour here," Tim replied.

"Bartender!" I yelled. "How about another round of vertigo enhancer for Santa Claus, the Eskimos, and us night fliers."

Mishaps with a Moral:

Victory for helicopter catchers.

A sister service reported that during the last two fiscal years it experienced 70 aircraft wire strikes which killed 17 people and destroyed 19 aircraft at a cost of over 2 million dollars. More than one-half of these wire strikes occurred during low-level flight (as opposed to takeoffs, landings, or hovering), and most were caused by flying in violation of regulations or directives.

Periodically, an Air Force chopper jock adds to this needless loss of life and equipment. This has happened in the past and, as sure as God made little green apples, will happen in the future — unless the pilots themselves make a unanimous vow to prevent it. The following mishaps are examples of the tangled mess that unauthorized low-level flight can create when you least expect it.

Wichita Lineman

A single-engine utility helicopter flying straight and level over a highway at an altitude of approximately 15 feet above the ground struck and snapped two power lines strung across a highway. Sounds incredible, but it happened.

A witness' report went something like this: "As we were driving north down the highway, my daughter saw a helicopter in the rear view mirror. The copter overtook us with a roar and flew right over our car and looked like it was going to land on the road directly in front of us. Then it took off upward, curved left, and nose dived. The craft crashed to the

ground with a tremendous force. One of the occupants ran beside the highway and another started to walk and then fell down. Two other men were caught in the helicopter . . . "

The investigation which followed determined that one of the high tension lines sheared the UHF antenna and then severed the right cyclic servo push-pull tube, causing loss of aircraft control.

Three of the crew sustained serious injuries. Another crew member, who wasn't strapped in, was thrown out of the helicopter on impact. He died.

The accident board findings revealed the following: Unauthorized contour flying in an area not designated for that type of training resulted in the wire strike. The pilot had a history of low flying and buzzing. In spite of several flying regulation violations, all of which involved unauthorized low flight, no action except a verbal admonishment had been taken against this pilot.

High Wire Act

The light rescue chopper was on a local training mission with two pilots and a medical technician aboard. After about 40 minutes of flight in the transition area, the pilot radioed the tower for clearance to cross the active runway so he could proceed to another remote training area located nearby. Due to heavy traffic, the tower controller did not hear the call. The pilot did not attempt another transmission but decided to depart the area without clearance. He proceeded parallel to the extended runway centerline, intending to cross beneath the departure end traffic. Approximately three miles from the field, he started a right turn and a descent. The turn was completed over a river and the pilot leveled the craft at an altitude of about 100 feet above the water. At this time he heard another aircraft departing the field and visually cleared himself of this traffic. Looking briefly down at the river, he spotted power lines directly in front of him. He attempted to avoid the wires but it was too late. The helicopter struck the lines and dropped into the water below.

The aircraft was destroyed. One of the two pilots received minor injuries and the medical technician suffered major injuries.

The primary cause of this accident was pilot factor. The aircraft commander allowed the helicopter to descend low enough to strike the power lines.

Inadequate supervision was listed as a contributing cause. A map showing hazards to low level flight in the local area did not indicate the existence of the power lines. The elevation of the power lines themselves was also a factor. The wires were strung much higher across the river than they were over the ground.

Last Call

Three pilots took off on a two-hour local proficiency flight in their twin-engine rotorcraft as scheduled. After spending one hour accomplishing instrument and proficiency maneuvers, the aircraft commander requested clearance to cross the runway. Tower granted the request and asked their intentions. The pilot stated, "We'll proceed northbound VFR and will call out of your control zone." This they did four minutes later. It was the last radio contact with the aircraft.

From this point, the flight path was reconstructed from the accounts of witnesses. After departing the control zone, the chopper proceeded some 14 miles northwest to a recreation area. It was observed flying at low level, 100 to 150 feet and below; on one occasion it hovered while the crew used the loudhailer to speak to a group of swimmers.

The chopper was seen again at low level over a river leading to the base. Witnesses estimated the helicopter was flying at about 50 to 60 knots, about 50 feet above the water. The crew again spoke via the loudhailer to some people in a fishing boat. One crew member was observed waving. Immediately following the call from the loudhailer, the helicopter contacted one of four power lines crossing the river. One line caught the fuselage. The helicopter continued forward until the drag of the cables caused it to pitch nose down and roll to the right. It struck the water inverted. All three pilots were killed.

The aircraft was being operated in violation of directives. Apparently, all three crew members accepted this disregard of regulations or at least failed to take the necessary action to terminate the unauthorized unsafe low flight.

In each of these mishaps an accident investigation board determined what caused the accident. But the tough question is why. What induces pilots to disregard air discipline and indulge in unauthorized maneuvers? One thing should be clear — whenever you fly at such low altitudes without proper authority, you've become a big gambler shooting for high stakes. The game of low flight may be fun but it is like playing Russian roulette, the thrill is short, and the price high.

Global Notes

traveling trophy

The Major General Benjamin D. Foulois Memorial Award, won by MAC for having the most effective aircraft accident prevention program for calendar year 1972, is going TDY for one-month visits to each of our six operational and two special airlift wings. These units' combined safety records resulted in the award to MAC.

This award is given by the Order of Daedalians upon selection by the Air Force Chief of Staff. This honor includes the possession of the traveling trophy for one year and permanent possession by HQ MAC of an accompanying plaque.

MAC FLYER wins publication award

The Flight Safety Foundation has named THE MAC FLYER the best government-published aviation magazine, world-wide, for 1973.

Brig Gen John H. Germeraad, MAC Inspector General, accepted the award at the 26th Annual International Air Safety Seminar at Lisbon, Portugal, on November 5.

The award is presented annually to the publication contributing most significantly to aviation safety. THE MAC FLYER is the first U. S. Air Force magazine to receive the award, an annual presentation since 1968.

Murry P. White, Chairman of the Flight Safety Foundation Board of Governors and the Executive Committee, presented the award to General Germeraad.

Gen Germeraad said that he considered the magazine a vital force in MAC's flying safety program.

"The competition for this award is very keen, a fact that makes the award even more significant for MAC," the General said.

THE MAC FLYER is published by the Safety Directorate of the Office of the Inspector General.

personnel changes

Maj Robert L. Gardner, a former associate editor, was presented with bound volumes of THE MAC FLYER published during his tenure on the staff. The July 1972 to November 1973 volumes were presented by Maj John W. Ray, Supervising Editor, in a ceremony held prior to Maj Gardner's assignment as a MAJCOM Weapons System Safety Manager (helicopter), at Scott AFB.

Joining the Flyer staff as an associate editor is Maj George Burgess. He comes to us from the Naval Command and Staff College, Newport Naval Station, Rhode Island.

Maj George Burgess

Fame, recognition and prestige are yours for the writing.

Announcing the 1974 MAC Safety Writing Contest

Writing Contest Rules

The 1974 MAC Safety Writing Contest is about to blast off. This is your big chance to make yourself heard — to sound off — and propose new ideas. In addition to having a chance to win an award, there's a chance to see your name and masterpiece in print — your entry may be published here in THE MAC FLYER. The contest begins New Year's Day and ends 31 March 1974.

Who can enter? You can. You don't have to be an aircrew member; maintenance and support people are vital to flying safety and are urged to enter. While only military personnel and DAF civilians assigned to MAC or MAC reserve forces are eligible for awards (type to be announced next month), anyone can submit an entry.

Your entry must be original, unpublished, and have a valid flying safety message. Other than that, your options are endless; fiction, nonfiction, technical articles, poetry, editorials — whatever turns you on. Please keep each entry between 1,000 and 3,000 words. That's about 6-14 typewritten pages, double spaced.

Your entry should be typed in two copies, double spaced, with no identification except the title. Then attach a cover sheet with the story title, your name, address (military address if you have one), and a brief biographical sketch. Mail your entry to: The MAC Flying Safety Writing Contest, MAC/IGYE, Scott AFB, IL 62225. Entries must be postmarked no later than 31 March 1974, and must be received at MAC/IGYE on or before 7 April 1974.

Among stacks of accident summaries are a few tales of incredible luck known as...

Mind Benders

Plane Aborts — Pilot Takes Off

The bumpy runway caused an abnormally rough takeoff and as the pilot pulled the stick back on rotation, the left main tire blew on the heavily loaded OV-10. It became apparent to the pilot that the bird wasn't going to fly and the Bronco veered off the runway.

There was a lot of feverish activity in the cockpit — differential reverse thrust, heavy braking, full rudder deflection — but the Bronco couldn't fly and wouldn't stop. The view ahead was rather dismal — the usual ditch, fence, bank and other obstacles. So the pilot chose a nylon solution and promptly ejected. The pilot's ejection was successful, and he landed about 100 feet from his vacant aircraft. Much to his amazement, he found that the Bronco had rolled to a stop with its props idling in reverse. The pilot walked over and shut down the engines before being taken to the dispensary. He was unhurt.

— AEROSPACE SAFETY

A Wing and . . . an Arm

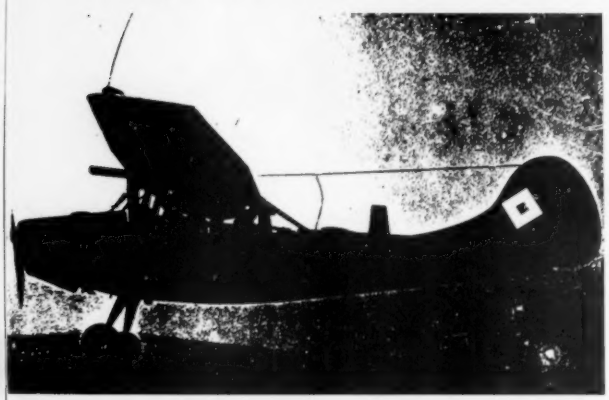
Two Army fliers who were assigned with a reconnaissance airplane company in South Vietnam in 1970 will never forget the O-1 spotter aircraft and its survivability characteristics. They brought one back on a wing and an arm.

While supporting a South Vietnamese division sweep, the aircraft was circling high over suspected enemy positions. Suddenly, the aircraft was caught in a fusillade of enemy ground fire and was torn

up pretty badly. Both crewmen were wounded — the observer severely.

The small spotter bird was still flying but the ground fire had damaged the tail section, causing loss of rudder control. The Bird Dog started spiraling to the right. The pilot, hampered by a wound in his left foot, fought the controls but to no avail — the plane continued to spiral and lose altitude directly over the enemy.

Then the pilot remembered a story he'd heard in flight school about a pilot sticking his arms out of the window and using them as airfoils. Quickly, he threw open the left window and stuck his arm out.



The badly wounded observer did the same and together they were able to create enough drag on the left side of the aircraft to fly away from the enemy position. At a safer distance, they headed for a nearby airstrip.

Uncoordinated without rudder control, they maneuvered their way to a final approach, and landed. Lacking directional control upon touchdown, the plane swerved, hit some loose sand, and overturned. The aircraft proved itself survivable once again. Neither occupant suffered further injury.

— US ARMY AVIATION DIGEST

One Too Many Green Lights

I've flown more than a thousand hours and I can say I have never had what could be rightly called a narrow escape from a fatal accident — in the air. But I surely heard the flapping of angel's wings once while I was on the ground.

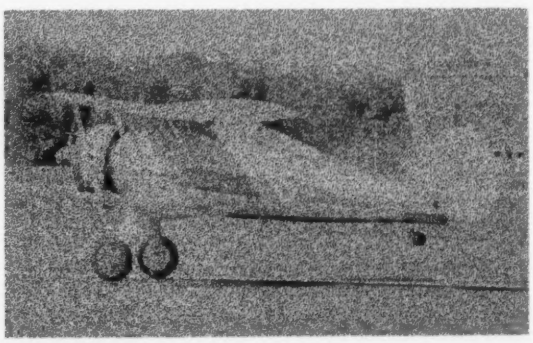
It occurred while I was still a student and we were night flying at Stockton Field, California. I was standing beside an airplane, one of a long line of ships parked with their wings parallel to the runway. Another student was sitting in the plane, and we were talking of this and that while awaiting our turns to fly.

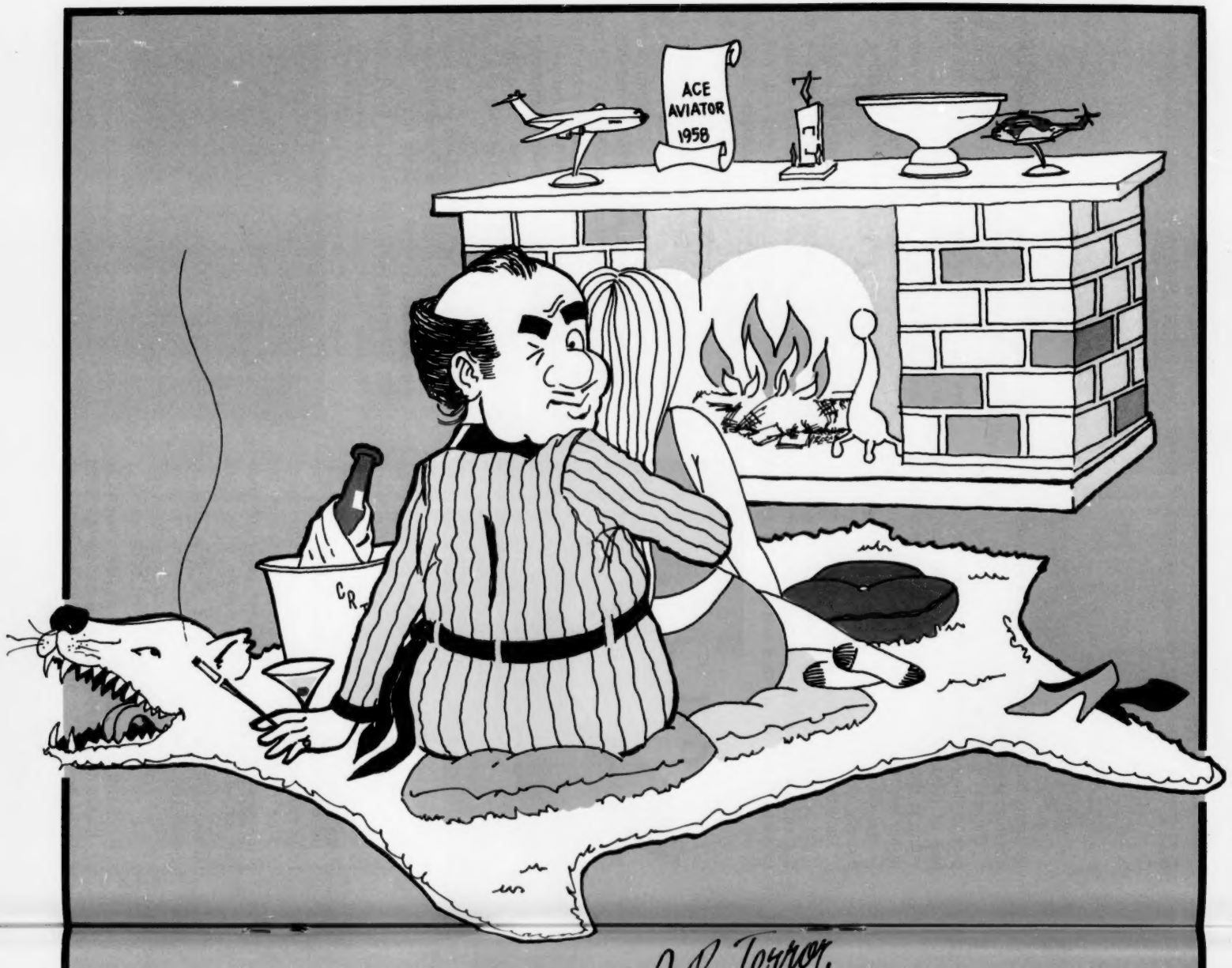
All of a sudden I heard the roar of an engine at full throttle and looked up to see an airplane not 50 feet away and coming at us like a meteor. I dived for the ground and flattened out, but my classmate in the plane was powerless to do anything but duck his head and wriggle down as far as he could in the cockpit.

The oncoming ship zoomed over our heads so close that it tore off the radio mast of the plane by which I had been standing, badly damaging its own right aileron on the propeller of the parked ship.

Afterwards, we found out exactly what had happened. Just as the student was getting ready to go, a big whirl of dust in the takeoff area obscured the runway ahead of him and he became confused as to just exactly which direction he was to take off. He knew, however, that a green light was at the end of the runway. A cursory look and he took off — straight for us. He had mistaken the green running light of our parked airplane for the runway beacon. It was just one of those miracles that he missed killing himself and the two of us by the proverbial whisker.

— ANONYMOUS

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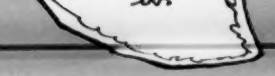

C.F. Terror

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DECEMBER

Think it couldn't happen to you? Don't kid yourself.

A Wing Tip's Sacred to No One

by Maj George D. Burgess, Associate Editor

It's cool here under the wing of the big bird. There is a mist in the fall air. The sun is rising slowly and will soon steal away the freshness of the night. It's so peaceful at this time of the day. Makes my mind wander — to other, better days, and to thoughts of other people. Dave Winslow — odd that I should think of him at this particular moment. It has been a long time.

As a lieutenant, Dave upgraded to aircraft commander in minimum time (2,000 hours in those days). All of the senior officers in the squadron were impressed with his drive and ability, happy to see him upgrade even though he was ripe for an overseas assignment.

Well, I saw Dave after he got back from Southeast Asia, shortly after his promotion to captain. Again, he had requalified in minimum time — instructor material. I recall him briefing his crew for a special mission to a fighter base. I remember thinking how confident he seemed. This was one of the reasons he requalified so quickly after returning from SEA. A confident professional, dedicated to mission accomplishment, always putting forth that extra effort to get the job done.

But when I saw Dave the following day, he was a little embarrassed. He had gotten a wing tip while taxiing out between two rows of fighters, trying to make a departure time.

This guy was a professional pilot, but he had problems now. I was really surprised when I found out what happened. Loading had taken quite a while that day, so he was trying to salvage the on-time departure. Instead, his taxi procedures got the mission even farther behind. Not that it mattered to him much anymore.

Dave and I talked philosophically about the incident. He was concerned about his aircraft commander status and his chances for upgrading to instructor after this. Honestly, I felt he should've been concerned about his next OER. He was bitter. After all he was only trying to make the system work. ALCE had briefed that there was enough room to taxi along that particular route. He admitted that it looked close, but he felt there was ample room to squeeze through — maybe not with the required 25-foot wing tip clearance, but enough. He acknowledged, frankly, that he had forgotten that a ground scanner is required for clearance of less than 25 feet. He thought one was necessary only when the wing tip was within 10 feet of an obstacle. Well, I guess that all added up to a lack of experience, plus Dave's over-exuberance for an on-time departure.

The investigation was surprisingly simple. The report read, "Operator error. The pilot failed to ensure wing tip clearance while taxiing."

As I sit here now, I wonder how many times I've been rushed into similar situations. I remember my first MAC instructor telling me, "There is no excuse, I mean none, for getting a wing tip." He was emphatic. I'll admit I have made up a few minutes by cutting corners, but always with caution. Experience means a great deal. And, after sitting in the airplane for a couple thousand hours, a guy gets a pretty good idea where the wing tip is in relation to the cockpit. I would never have tried such a fool stunt as taxiing fast through the aircraft parking area.

I let the incident pass out of my mind. Maybe I should have spent more thought on the subject when Dave had his problem. Perhaps I should have reevaluated my own standards then and there. But, I didn't. After all, I had lots of experience.

Excuse me a minute. Here comes my engineer, Smitty.

"Sir, it looks like the whole base is coming out to see you."

Yep, he's right. Here they come. And it looks like the wing commander leading the caravan. Oh boy — Dave Winslow you've got company. Oh, why did it have to happen to me?

Want to know what happened? As we taxied out today, I tried to squeeze between a hangar and some ramp construction equipment. I was following the yellow line, and it looked like we could clear it. Unfortunately, I scraped the right wing tip against the hangar. But it sure looked clear.

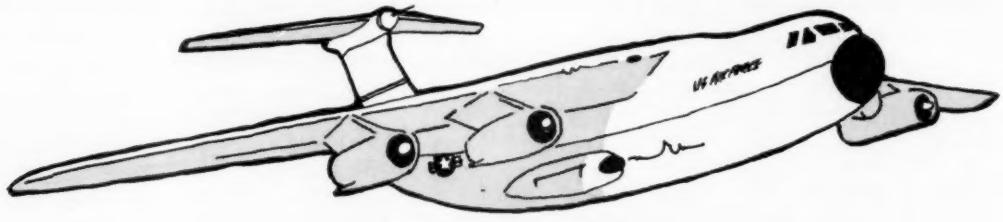
What good did my instructor's lesson do? What message did Dave Winslow's accident have for me? Well, here I am. There is a hole in the airplane and here comes the commander. You figure it out.

You guys want to get a step ahead of the game? Then let this be a lesson for you. Experience is a bonus for safe operations, but your attitude is the key. You can't accomplish the mission when you break an aircraft violating the rules. One mistake leads to another unless you learn from past experiences. One little violation can snowball into a large mistake. So think of yourself for a change and keep out of this kind of trouble. There is really no excuse for ever getting a wing tip.

You know, it makes me kind of sick just looking up at that hole in the wing.

When in doubt, use wing walkers.

Tired from delay, the Stubby Skipper of Starlifters finally slips the bonds only to be haunted by the past.



C.R. TERROR

Major Terror was dead tired to begin with. There was no doubt whatever about that. Maintenance and loading problems at Hickam had the usually unflappable Master Manipulator puffing and snorting before he finally got his Starlifter airborne.

But airborne it had become, and the jet was now homeward bound, cruising through the lonely night with the greatest of ease.

"Sam, m'lad," offered C. R. in an unusual act of charity, "go back and get yourself forty winks. No use for both of us to sit up here in misery."

"Sir, I'm not too sleepy. Maybe you'd better go back first. You're really looking beat," replied Sam, who the night before had declined his boss' invitation to venture downtown and "put some life into this funeral parlor."

C. R. looked over at Sam again and motioned his head to the rear of the plane. Both Sam and Blinky, the navigator, were beginning to get on C. R.'s nerves. "Talk, talk, talk. The younger generation just never shuts up," he thought.

Sam dragged himself out of the seat and stumbled toward the rear. "Merry Christmas," he called out to no one in particular.

Before C. R. could utter "Bah, humbug," Sam disappeared into the cabin, leaving old scrooge alone in the cockpit, lighted now by the soft glow of instrument lights.

"So what's the big deal," mused C. R. "It's Christmas Eve and every cotton pickin' soul in the Pacific is making a big to-do over something that happens every year." Traffic controllers throughout Southeast Asia had bugged C. R. for the past few days with their incessant "Merry Christmas, sir."

"What right have they to be merry tonight," he wondered. "They're working, just like me. I should have been home yesterday. My Christmas Eve cheer calls for Stella, a roaring fireplace, bearskin rug, and martinis. Bah, humbug!"

The Avoirdupois Aviator was certain that fate's nastiest tricks were held in reserve to wreck his plans.

Adjusting his seat, C. R. settled back and gazed into the dark sky. In a minute his eyes grew unresistingly heavy. He felt tired, frustrated, unfriendly and, all in all, like his usual self after having an evening spoiled.

A slight bump jarred his eyelids open. They were about to flop closed again when an unintentional glance at the instrument panel caused him to bolt upright in his seat. Looking him right in the eye from the instrument panel was an eerie face, its body held suspended by two eagles, one clutching each shoulder. Both eagles were flapping their wings silently, hovering in place like a pair of feathered helicopters. C. R.'s jaw dropped down on his chest.

The Master of Bravado attempted to speak but was unable to find his voice. He struggled to pull himself from the seat, but in his panic forgot to unfasten his safety belt. Wrestling his thick torso about for a few minutes, he finally decided some mysterious force was holding him tight.

A pale C. R. turned back for another look at the instrument panel. To his astonishment, the specter motioned for him to follow. Before he could plead that altitude would not allow pedestrian traffic, the cockpit had disappeared and a strangely familiar scene appeared.

"I must be suffering from snack bar phobia," thought C. R., his courage draining fast. "This guy with the hovering eagles must be a bad cheeseburger."

The specter said nothing but turned its ghostly countenance to C. R. The scene below became clearer. "Great Heavens," thought C. R., his voice still limited to inaudible moans, "That looks like me when I was at West Palm Beach. And there's old Sam, my copilot." Two figures were busily engaged in the cockpit of their SA-16, apparently on a final approach. The copilot was speaking.

"Say, Skipper. I'm not one to belabor a point, but we're on final and the gear . . . "

"Confound, man," a much younger C. R. was saying, "don't make a Pentagon project out of it. Just put the cotton pickin' gear down." Sam shrugged, reached over, and shoved the gear handle to "down."

"That's the trouble with you young men. No discipline. When I tell you to do something, do it. Always a debate we gotta have. Is the checklist complete?"

"Yes, sir. And gear down, sir," replied Sam, tightening his safety belt.

"Roger," said C. R., "now stand the flashlight on end and I'll make my usual grease job without toppling it from its perch. Here we go."

The specter and C. R. glanced at each other as the amphibious plane continued down final. C. R. watched in wonderment and was genuinely amazed at how fast the SA-16 sank after touching down in Lake Okeechobee. C. R. remembered it well.

The Thing with the hovering eagles looked at the Bold One, who by now was inspired to break all existing track records but couldn't get his legs moving.

"Any amphibian pilot could have told you that the gear should be left UP for a water landing, Major Terror," a mournful voice rattled. "Do you realize how long it took for the divers to find that airplane?"

"What kind of a ghost is this," wondered C. R. "Asks me questions but won't let me have my voice back to answer. Gadfrey. Let me out of here!"

He turned toward the strange companion, but the specter was gone. Suddenly, C. R. was gaping at the command markers on the instrument panel instead of the apparition. Sweat streamed down his clammy forehead.

He shut his eyes, hoping to forget what had just transpired. In a few minutes he opened them again only to find his worst fears confirmed.

A new visitor sat perched on the throttle quadrant. The greenish glow shrouding the little fellow was almost blinding. The figure's appearance ranged between a fur-lined Kewpie doll and a white bearded Cub Scout, viewed through some supernatural medium. It appeared almost comical but C. R. wasn't in a laughing mood.

The small creature made a rude finger gesture and then waved for the captive mortal to accompany him. The nightmare renewed in all intensity now and C. R. felt as though he had been heaved out of the aircraft and was plunging seaward in the night.

As if by magic, he found himself back at Hickam with this new acquaintance. They were aboard a Starlifter. C. R. saw the pilot's shiny head, and realized he was watching himself and his own crew as they had performed a few hours earlier.

C. R. admired his own takeoff technique but could hardly imagine why he had been brought all the way back to Hickam just for that. The bearded little figure just sat on the console writing vigorously in a diminutive pad.

"Worse than a bloody flight examiner," the rotund one mused, accepting finally that the visitation was real. "A new method for MAC to harass the troops, no doubt."

But in a few minutes the reason for this flashback became clear to C. R. As he watched the crew's performance, he noted several mistakes that had gone undetected earlier. Instead of letting Sam copy and read back the revised clearance during climbout, C. R. had assumed this duty himself and read it back wrong. Departure Control failed to correct the readback and, consequently, the aircraft leveled at the wrong altitude, began tracking out the wrong VOR radial, and was squawking an improper code.

For once, C. R. became thoughtful and genuinely concerned. His mustache, which always stretched regulations, now drooped visibly.

In an instant, another scene appeared. A short, chubby major stood before a group of officers; his mustache twitched as his lips moved to speak.

C. R. looked closer and recognized the major by the runover heels on his scuffed shoes. It was like looking in a mirror! The kewpie-scout looked up at C. R. and beckoned him closer. They listened. A tall, white haired officer was speaking.

"You have broken the rules either knowingly or through complacency. You flew the wrong course at the wrong altitude and disregarded all calls from control agencies attempting to correct your error. You did it, all right. What's more, what's more than that, you did it your way!"

At that, the Kewpie-scout began glowing an even brighter green. It turned toward the terrified C. R. and moved closer. The green light hurt C. R.'s eyes, which by now were as large as the bowl of his martini glass. A step back sent C. R. falling. Down, down, he dropped.

* * *

"Sir, this is Blinky. Sir, do you read me?"

"Wha-, what. Yeoow!" Something had C. R. by the arm, pulling him back.

"Major, are you all right?" It was Sgt Torque, shaking C. R. by the arm. He had turned the cockpit lights full bright to help bring his aircraft commander back into the real world.

The Suave One looked up at his flight engineer, then managed a lame smile of recognition which sent Sgt Torque back to his seat.

"Well, Blinky, m'boy, where are we?" The shaken C. R.'s tremulous voice asked the question automatically.

"Well, sir," came back Blinky, always anticipating C. R.'s post-sleep questions, "about an hour and a half out of Travis. On course, about a minute ahead of flight plan."

"You sure you got us on the proper route?" C. R. remembered his last visitor.

"Yes, sir. Airways called back while you were asleep to see why we hadn't made our last position report. I talked to them and got it squared away. We weren't far

off our original flight plan, even though we started out on the wrong radial. I recomputed the winds and they helped, too. We're okay, sir."

"I wasn't asleep. I was just sitting up here thinking. You should have let me talk." He didn't give Blinky a chance to reply.

* * *

"Okay, back there. Everybody up. We're getting pretty close in." C. R. looked over at Sam, who was strapping in. The tired copilot looked awful — tousled hair, sleep creases in his face, and frowning.

"Sam, m'boy, we're nearing dear old Travis again. We'll hit the ground running, make it to the club for a drink or so, and rend ourselves available for action. This nurse I met in the Philippines is stationed here and . . . "

Oakland Center broke in with a clearance, which Sam read back sleepily.

"What was that altitude," queried C. R., who hadn't stopped talking while the clearance came through.

"Nine thousand," said Sam, "but you weren't supposed to begin your descent for five more minutes."

"Just checking the autopilot, m'boy. Just checking the autopilot." C. R. eased power back in on the four engines and regained the 1,000 feet he had lost in the premature descent.

"Want to get the descent checklist now?" asked Sam.

"Naw, same old approach. Same briefing as last time, same terrain; same old question I always get from you."

Sam shrugged and looked knowingly at Blinky. Blinky just rolled his eyes and shook his head.

The Starlifter began a descent as the glow of San Francisco loomed ahead.

"Boss," said Sam, breaking the silence. "I had a real funny dream awhile ago."

C. R. eyed him suspiciously. "Your thoughts during slumber hopefully penetrate much deeper than those miniscule impulses occasionally experienced in your awakened state."

Sam ignored the wicked barb.

"It was something about the future. You were an astronaut."

"An astronaut. Har, har. On the other hand, I no doubt possess the qualities necessary for such . . . "

Sam continued. "I could see you outside a spaceship and someone waving a checklist from inside the ship. Then, suddenly, your lanyard came loose and you began to drift off into space."

"Hmmph," thought C. R. "What an unlikely dream." But it occurred to C. R. that while his own dream had concerned the past and present, Sam's was about the future — C. R.'s future. It sounded too familiar. He decided not to take any chances.

"Sam, on the other hand, let's get a good descent briefing. You guys have screwed me up enough on this trip. It's time you became more professional. Call the Command Post as soon as you can and get the current weather. Sgt Torque, got that TOLD card all figured out? Double check it. Probably have an icy runway. Just for the heck of it, I'll recheck the IFR supplement again for anything strange. Blinky, anything on that scope. Loadmaster . . . "

Travis Approach was calling. "Merry Christmas, Approach Control," bellowed C. R. "We're level at 9,000."

Approach gave a clearance and this time C. R. let Sam read it back. It was correct.

"You know, Sam, that's the way you're supposed to copy clearances, not like you caused me to do at Hickam because you were so slow. Always remember, follow the rules and your conscience will never bother you. And you'll live to have many a martini in many a club."

"In other words," bantered Sam, "Just watch how you do things and do the same, right?"

"Well, m'lad, all things considered, that's about the size of it," admitted the most modest of MAC's pilots.

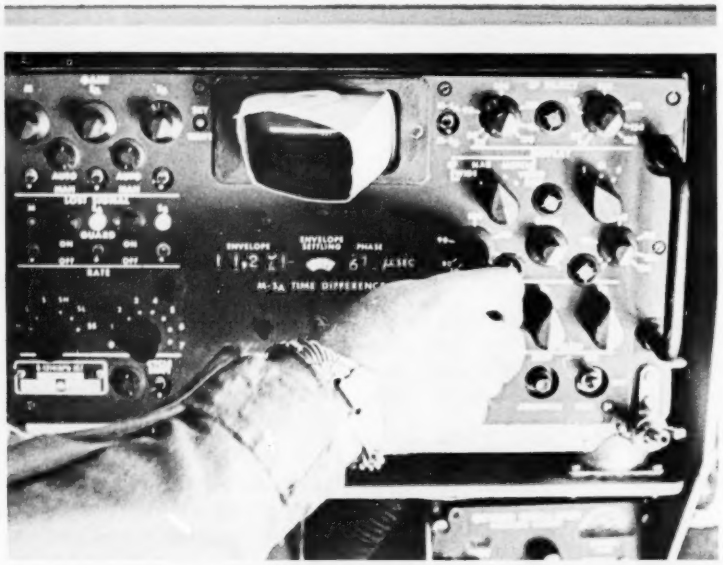
"Bah, humbug," retorted Sam, in a rare outburst.

But C. R. didn't hear him. He had already tuned in a radio station on the ADF and was humming to the tune of "Rudolph the Red Nosed Reindeer."

A sun drenched cockpit makes LORAN interpretation tough, but one clever nav came up with an inexpensive solution.

A Two Cent Mod for the APN-157

by Maj Orlen L. Brownfield
63 MAW Standardization
Norton AFB, California



This simple fix permits easy signal recognition.

What's that? You say your coffee's gotten cold because you had to precomp a manual sunline? Your ASN-24 celestial panel is out? You're on NAT Track Charlie and Ulster Radar has been laying for you? You've got the moon for a course line but can't decide how to apply the parallax? And the rising sun is so bright you can't see the traces on your LORAN? And maintenance sent the night curtains out for cleaning.

Is that what's bothering you friend?

Well, don't despair. Just empty out that cold coffee and get some hot. But don't throw away that old cup! It just may be your salvation.

How many times have you wished that its manufacturers had mounted a scope hood on that APN-157? It's bad enough that the set was designed for a submariner working in the dark, traveling at six knots and not for an Apollo aeronaut making near 600 knots. On top of that, you've got the sun staring you in the face.

Only last month I received a suggestion from a second lieutenant navigator recommending the development of a scope hood for the APN-157. I had wished for one myself for so many times that I forwarded his suggestion to higher headquarters, recommending approval. But what happened? You guessed it — no money. So applying the genius of a keen analytical mind and the imagination of an Iowa farm boy, I came up with a two-cent mod that should even make Congress happy.

Now where were we? Oh yes.

Save that old coffee cup. The diameter of that cup is nearly the same as the aperture of the APN-157. In other words, it'll fit right in there if you change the shape from round to rectangular. Cut out the end of the cup. You can even make the cut diagonal to enable you to see the scope without leaning too far out of your seat. Then, just fit it to the aperture. The old coffee stains inside the cup even cut down on the reflection and make for easier reading. Or you can do just as I have — ink the inside of a new cup with a black magic marker and, presto, you have a readable signal from a North Atlantic chain indicating you're 20 miles north of course.

Good luck!

A Flying career mirrors life: youth, middle age, and old age. Each phase has its dangers.

Phasing into Flying

by Maj Lural D. Stingley
45 TRS, Bergstrom AFB, TX

(Ed Note: Although authored principally for pilots of fighter type aircraft, the message here is applicable to all pilots.)

Once upon a time, way back in the early 1950s, Air Force cockpits were filled with young pilots, and the accident rate was way over 10 per 100,000 flight hours. Jet engines were new. Supervision was scanty, because we still believed in "survival of the fittest." The "Poor Pilots" either killed themselves or were killed by other factors they couldn't handle. The "Good Pilots" survived, through skill, cunning, and a whole lot of luck. If a young troop was smart enough to want to learn from the experiences of others, he was forced to hang around the bar, because no one talked about his goofs until he had a few drinks under his belt.

In those days, the most used item for judging a pilot and predicting his longevity was his total flying time. There were countless studies made of the relationship between accidents and flying experience. These studies were published in every flying magazine in existence. And everyone agreed, the less flying time a pilot had, the more likely it was that he would be involved in an accident. As time rolled on, the Air Force cut back the production of rated officers and the laws of nature continued to function. Soon it became apparent that things had changed. The rated officer corps was still young, but it had gained a great deal of experience. Much of that experience had been quite exciting. The "Poor Pilots" for the most part had either been killed or frightened away. So it came to pass that when a brand new pilot reported in to his flying unit, he found himself surrounded by highly experienced aircrews — "The Survivors" — some prematurely gray. He was mothered along and was allowed to gather experience only under the watchful eyes of his supervisors until finally he too was considered an old head professional. As a result, the Air Force accident rate dropped to a level that had previously been thought of as an unattainable goal — below 3.0.

Now the cycle has started over again. Vast numbers of young'uns are replacing the old heads who are retiring or being gobbled up by the rated supplement. Commanders with long memories are becoming more and more nervous.

Statistics

Rather than bore you to death with the overwhelming bunch of numbers I received from the big computer at Norton AFB, I've tried to interpret them so I can present them in general terms. The term I will use is called "Phase Points." They are so named because of the general psychological changes which seem to affect crew members within specific levels of flying experience. Please remember, Phase Points are not exact. Some people will

Phasing into Flying

get hung up on one particular phase. And still others will exhibit no phase symptoms at all.

Each individual is unique and as individuals they cannot be predicted. However, as a group, they will exhibit, to some extent, the characteristics of each phase point.

First Phase Point: 800 hours

From zero to 800 hours is a period of most intensive training — both supervised and experimentation training. This is the period where pilots of real potential are separated from the aviation minded plumbers.

The losses experienced during this phase are quite high and can be categorized as follows:

- Catastrophic materiel failures.
- Emergency conditions which the crew member simply could not handle at his present stage of training or experience.
- Accidents which occurred because of the pilot's physical or mental inadequacies; i.e., a lack of motor coordination, reflexes, etc., and mental complexes which may vary from freezing up when faced with an emergency, all the way to the guy who can't appreciate the beauties of normal flying and must get his kicks from such things as flying under bridges, stampeding cattle, and other such things.

At any rate, once the average pilot has logged 800 hours, he has gained enough knowledge and skills to cope with most of the problems he is likely to encounter. Perhaps of even more importance, he still retains enough awe and respect for his new profession that he is not likely to create his own tight spots. So for the next 700 or 800 hours he is a pretty safe pilot.

So you can judge the validity of the 800 hour mark, let me point out that most of the life insurance companies use the 800 hour mark as the point where they make the first reduction of premiums for flying coverage. When you consider the number of successful life insurance companies, it must be fairly accurate.

Not all the plumbers are eliminated or killed by the 800 hour mark. Some will luck through and go on to bigger and better accidents. A select few will bolster your faith in the supernatural by living through a whole career of cheating death.

Many MAC drivers cut their teeth in Old Shakey.

The Second Phase Point: This point is less distinct than the first.

Primarily because those people who would have been most apt to demonstrate the characteristics of this phase have already been eliminated. However, right around the 1,500 hour mark, pilots can be expected to develop the following symptoms. These symptoms may or may not be demonstrated, depending upon the stability of the individual:

VANITY: Self-esteem out of proportion.

RATIONALIZATION: A tolerance for personal errors.

COMPLACENCY: Brought about by his sucess in living so long.

OVERCONFIDENCE: In extreme cases, a feeling of immunity from death develops which makes it impossible to exercise good judgment because dangers cannot be recognized.

Obviously, those aviators who succumb to these illusions are going to raise the accident rate. Now, fortunately, airplane drivers as a group are relatively intelligent and quick to learn — providing something or someone gets their attention. Since attention getting experiences of various magnitude come pretty close together in the flying business, most aviators outgrow this phase in short order.

The Third Phase Point: Occurs right around the 2,000 hour mark.

This seems to be the magic number. The pilot

with 2,000 hours of good flying time under his belt is the single most valuable asset the Air Force possesses. He is the doer — he is the instructor — he is the supervisor — he has survived the tests of the natural laws of aviation — he understands and accepts those laws — he knows what he can do and he knows his limitations. To top it all off, he is hooked — **hooked on flying.** No one can fly that long without loving it. As in any line of work, the people who excel are the ones who love their work. The insurance companies support this point by lowering their premiums for flying coverage to an almost affordable level at 2,000 hours.

The Fourth and Last Phase Point:

It is not based on flying time but rather on age. Age and the individual's ability to accept the limitations of age. You have all seen the old pilots who need glasses, but refuse to wear them. Or maybe the old guy who has lost some of his recuperative powers, and yet when out cross country, he insists on staying up most of the night to drink with the young'uns, then shows up to fly the next morning looking like death warmed over and feeling even worse.

Perhaps the most pressing problem the Air Force faces today is how to assimilate the young aviators who comprise the "new rated hump" without incurring unacceptable losses. We know, from experience, that we can take a brand new pilot, throw him into a squadron full of old timers, and before long he thinks and acts like an "Old Pro." What we must do now is take a whole bunch of brand new pilots, throw them into a squadron with just a few old timers, and achieve the same results. We hope that through supervision (in the form of education and discipline) we can do just that. We must do it. Most of the supervisors of today are survivors of the 1950s and I doubt there is one who did not lose a friend to a needless accident. We do not want to lose any of our young troops that way. And we will do whatever we can to prevent it. We will lecture them, evaluate them, place restrictions on them, and do anything else we feel will help them in the long run.

Surviving in the jet age.

No place for complacency here.

On the other side of the coin, I have heard a lot of new guys remark that their operational squadron is a lot different than Air Training Command and RTU because it is so much looser. Well, it is a little looser and less rigid, but not because the commander and supervisors are not believers in discipline. They are. It is actually a kind of conspiracy, designed to produce an atmosphere of mutual trust and respect; calculated to allow the individual to grow in experience, self-discipline, and personal responsibility. It also allows him to take his doubts, problems, and ignorance to his supervisor, as to a friend, not just a boss. Don't be afraid of the few crotchety old devils left in the squadrons because they want nothing more than to help you. Chances are they won't offer help unless you ask for it. So you may have to make the first move.

You young'uns are the most important people in the Air Force, and we all know it. We want to make it through this dangerous period without losing a single one of you. So, 15 years from now when you are all faced with a whole new crop of eager young air machine drivers, you can say, "Boy, these kids sure are green — but if we bring them along like we were led, there should be no problem." Most of all we want you to live so that in your dotage you can look back on your flying career and cherish every minute of every hour you logged. So be it!

(Courtesy of TAC ATTACK)

Weird Ice

The Base Operations officer noticed a C-5 shed a large piece of ice from its right wing as it passed the 2,000 foot marker during takeoff roll at Elmendorf. He retrieved a piece of the ice. It was an eighth of an inch thick.

The crew was notified of what had happened but replied that no ice had been found during the preflight and that takeoff performance was normal.

The lowest recorded temperature during the 16-hour ground time was 38°F in light rain and drizzle.

No one seems to know what caused the ice to form and whether there exists an unknown potential hazard in such a weather condition. Any ideas out there?

Aerobics in a Hercules

The crew of a WC-130 was on a reconnaissance mission in the area of a suspected tropical cyclone in the Pacific. Descending into the suspected storm area, the nose of the aircraft began to rise unexpectedly. The pilot pushed the yoke forward to counter the rise but the nose kept coming up. A quick glance at the trim indicator confirmed the pilot's suspicion — runaway nose-up trim.

The pilot placed the elevator trim selector switch to "off" and then to "emergency," but the trim continued its run toward full nose-up. To help force the nose of the aircraft down, both the copilot and pilot braced their knees against the yoke. Together, they forced it to the extreme forward position but nothing happened. The plane continued its skyward plight in a 45-degree nose high attitude. The pilot was quickly running out of ideas and airspeed when a 30-degree bank helped control the pitch. The pilot alternately selected different positions of the trim selector switch and tried retrimming with both the control wheel and pedestal mounted switches.

Trim control was finally regained when "normal" trim mode was selected and the pilot's control wheel switches were actuated. Now, 6,000 feet higher, a sense of normalcy returned to the cockpit. The elevator trim was neutralized and electrically isolated. Return trip to the island base was uneventful.

During the next three days, maintenance personnel discovered a faulty nose-down relay, moisture in the pedestal control switch, a loose cannon plug on the elevator trim actuator, and a faulty pedestal control switch.

Whew!

A Flare For Trouble

Would you believe that for the second time in as many months a MAC crew member discharged a flare pistol inside an aircraft? A loadmaster rates the dubious distinction this time.

The inadvertent pyrotechnics discharge took place aboard an HC-130 after a refueling mission in SEA. During the first refueling, the flight engineer loaded the flare pistol. Following the last refueling join-up, the loadmaster unloaded the pistol and placed it along with the flares.

On the way back to home base, the loadmaster began gathering and stowing equipment. He picked up the flare pistol, breech still open, and started toward the front of the aircraft. As he closed the breech, the pistol discharged. The flare hit the cargo floor and the loadmaster's interphone cord causing the wires to fuse. The shorted cord disabled the entire aircraft interphone system until it was unplugged from its junction box. The second flight engineer put out the flare with a fire extinguisher.

No one is quite sure how the flare got back into the pistol after it was unloaded. But it's always the "empty" pistol that causes problems.

Jerked Line

The paratroopers exited normally from the aircraft. But as the static lines were being retrieved, a static line anchor cable support broke loose. The inboard static line had been improperly rigged, causing the A-frame to pull loose from the overhead when the right hand static line retrieval motor was actuated. Had this happened a few moments sooner, the jumpers would have been without a means to

open their primary chute. Worse yet, the static lines could have become entangled around them.

Aircrews know better than anyone that the safest way to fly is by following tech data. And rigging for an airdrop requires even closer attention in the cabin.

Don't let such an incident occur on your aircraft. Check those lines!

after deadline . . . .

FROZEN AILERONS -- A C-141 pilot was almost ready for takeoff when he discovered the aircraft's ailerons were jammed. The malfunction was detected during the flight control check. The pilot finally managed to free the stuck ailerons by going to tab operable, at which time the jolt of the hydraulic pressure broke them loose. An improper screw, used to secure the access panel for the aileron actuator and servo booster, caused this serious incident. The screw was in the inboard, forward most screw hole of the access panel.

When the system is operating normally, the aileron bell crank arm passes underneath the screw when the ailerons are actuated to maximum deflection. However, in this case, the screw was seven-eights of an inch long rather than the specified one-half inch. The excess screw length was enough to cause the bell crank arm to contact and then jam against the screw. Investigators recommended a one-time investigation of screws in the panel. This incident points up the necessity for strict checklist discipline. The crew in this case followed the rules and were glad they did.

LOOSE SPOILER SWITCHES -- If some of you C-141 crew members are having problems with false spoiler selection indications, you might be interested in knowing why.

WRAMA reports that the spoiler switch can inadvertently become loose and rotate within the console, resulting in false selection indications. Tech data calls for installing the switch with two lockwashers, one on each side of the console, and a locking ring on top of the console. When the upper locknut is tight, there's no problem. But when the locknut is loose, the locking ring may strip the key slot in the brass shaft, allowing the shaft to rotate. This causes a loose spoiler switch. WRAMA says that lockwashers and locking rings in themselves do not solve the problem. So what is the solution? The preflight inspection calls for checking proper spoiler positioning. This is the best time to get the "feel" of the spoiler switch on the console. If it feels loose, it should be reported to the crew chief or maintenance.

The MAC Flyer 1973 Yearly Index

Title	Month	Page
Accident Discussion		
Rush to a Long Delay	Mar	18
The Accident After the Accident	Apr	8
It's All in the Approach	Jun	8
Itty, Big, and Huge	Jun	16
Premature Terminations	Oct	13
Wire Strikes	Dec	10
Aero Club		
A Short and Battery	Apr	13
Pre-flight in Haste	Apr	24
Aerodynamics		
Axial Eructation	May	19
An Errant Equation	Oct	10
The Mystery of Tail Rotor Droop	Nov	13
Aircraft Security		
One Loss is as Bad as Another	Feb	12
Hijack	Feb	14
C. R. Terror		
Party Time	Jan	26
Weather Briefing	Feb	26
HH-53 Mishap	Mar	26
Aero Club Mishap	Apr	19
Hijack	May	25
Looking Back	Jun	20
Mission Support Flying	Jul	26
Air Evac	Aug	19
Huey Mishap	Sep	20
C-5 Mishap	Oct	20
Cold Weather Mission	Nov	24
Ghostly Apparition	Dec	20
Editorials and Letters		
Letters	Feb	10
Discipline: The Soul of Aviation	Jul	3
Letters	Aug	12
Letters	Sep	23
Letters	Oct	12
This is Your Pilot Speaking	Nov	3
A Christmas Message	Dec	3
Flying Safety Stories		
Want to Keep Your Head	Feb	25
To Kill a Chopper Pilot	Mar	3
A Tale of Two Training Flights	Mar	10
Appendage Conservation	Mar	17
The Heated Decision	May	3
The Gremlins Ride Again	May	16
Syracuse Sucker Trap	Aug	24
Don't Save It Until Tomorrow	Sep	7
A Fireworks Spectacular on the Leghorn Ramp	Sep	12
The Super Silent Flying Team	Sep	19
Mid-Air	Nov	16
Arctic Santa Claus	Dec	7
Mind Benders	Dec	14
A Wing Tip's Sacred to No One	Dec	18
Good Show		
Maj Espiau HH-43	Mar	13
Capts Elston and Stevenson WB-57F	Nov	12
Maintenance and Traffic		
Electrochemical Canker Sores	Jan	8
The Great Bird Buster	Jan	19
A Maintainer's Guide to Galaxy Bending	Mar	19
Nuts to the Calibrated Forearm	Jun	23
SOAP System Integrity	Jul	15
The Scourge of the Fleet	Aug	14
Just Another Way of Looking	Aug	22
5-4-3-2-1 Blast Off	Aug	8
Navigation		
RNAV Means Kiss Your Gator Good-by	Jun	3
Magellan's Place in the Box	Jun	26
The Magic Word	Aug	3
Two-Cent Mod for the APN-157	Dec	24
Operations — Transport		
CAM on CAMERA	Jan	16
I'm a Believer	Aug	10
How to Approach the High Bounce Problem	Sep	14
Euphoria-Eureka, You're In It	Sep	25
One Hundred Above — Land	Nov	4
Performance Data	Dec	4
Operations — Helicopter		
You Have a Choice	Jun	14
Hot and High Could Leave You High and Dry	Sep	9
Here's What's New in Rescue	Sep	16
Tilt, Rollover, Upset	Oct	23
Operations — General		
The Ultimate in Air Pollution	Mar	8
The Three Stages of TRSA	Apr	16
The Hiss that Leads to Hypoxia	Apr	22
ACP: Friend or Foe	May	8
What's It All About ALCE?	Jul	8
Species Constructorus	Jul	10
He Who Hesitates, Loses	Jul	12
It Pays to Watch Those Gauges	Jul	22
Autumn, Aves, and Airplanes	Oct	3
To Foam or Not to Foam	Oct	26
Ole Man Winter Strikes	Nov	8
Physiology and Flight Medicine		
The Basics of Social Self - Medication	Jan	3
The Aftermath of Social Self - Medication	Jan	22
Chopper Crew Contamination	Mar	14
Seeing What You Are Looking For	Apr	10
Has Your Zoom Lens Lost Its Zip	May	14
Flying High	Jun	12
Standards and Leadership		
Instructor Philosophy	May	12
The Model Man	Jul	4
Tuning the Inner Man	Jul	18
The Challenge of Choice	Jul	24
Here Come the Funny New Guys	Sep	3
Second in Command	Oct	8
Surviving the Phases of a Flying Career	Dec	25
Weather		
RBS-Plan B for Weather Forecast Service	Feb	3
Haze? Yes, that's . . . Uh . . .	Feb	19
The Forgotten Lexicon of Summer Afternoons	Apr	3
Aboard Flight Gull Seven	Oct	16
No Place for Illusions	Nov	20
Miscellaneous		
So What Do I Say Now?	Jan	12
A Note from an Old, Tired Engine	Feb	8
Out to Pasture at Twenty-Eight	Mar	6
What Communications Gap?	Apr	27
A Visit with the Soldiers	May	6
An Air Force Wife	May	18
Index	Dec	31

December 1973

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